|  |
| --- |
| **Patterns with Skip-Counting**  \*Lesson is adapted from activities in *ThinkMath!,* Harcourt School Publishers, 2008. |
| **Mathematics, Grade 2** |
| **Materials:**   * Number line from 0 to 99 – Posted or drawn on the board or wall at student height * Markers to mark jumps on Number line (1 marker or set of markers) * Hundred **B**oard – 1 per student; Use the blackline master of the Hundred Board that is attached; This board starts at 1 and ends at 100. * Counters – class set |
| **TEKS/SEs:**   * 2.5A – find patterns in numbers such as in a 100s chart * 2.6C – identify, describe, and extend repeating and additive patterns to make predictions and solve problems   **Objective 6 TEKS/SEs (Underlying Processes and Mathematical Tools):**   * 2.12A – identify the mathematics in everyday situations * 2.12B – solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness * 2.12D – use tools such as real objects, manipulatives, and technology to solve problems * 2.13A – explain and record observations using objects, words, pictures, numbers, and technology * 2.13B – relate informal language to mathematical language and symbols * 2.14 – use logical reasoning; justify thinking using objects, words, pictures, numbers, and technology |
| **Lesson objective(s):**   * + Students will :     - Explore a number line to 99 and skip-count to discover patterns     - Explore a 100s board and skip-count to discover patterns |
| **Differentiation strategies to meet diverse learner needs:**   * Problem- solving, inquiry-approach * Hands-on exploration * Collaboration and discussion |
| **ENGAGEMENT: Silent Teach**   * In Silent Teach, neither the teacher nor the students speak at all. Students must have “eyes on the teacher” to figure out what is happening. The teacher selects students to contribute – teacher’s choice, no hand-raising or volunteering. Students indicate with thumbs-up-down-sideways whether they agree with a student contribution. * Using a secret sorting rule, silently start making jumps of 10 on a number line on the board. Start at zero and circle or underline the numbers where each jump lands. * Silently, hand the marker to a student to jump to the next multiple of 10. Use silent gestures to solicit thumbs-up or down from students, and to approve or correct the child’s decision. Repeat several times. Then break the silence, and have children describe what patterns they saw with jumping on the number line.   + *What number did you circle after 30?*   + *What method did you use for counting by tens?*   + *What number patterns can you find when you skip-count by tens?* |
| **EXPLORATION**   * Ask students to count aloud in unison by tens, starting with 0 and ending with 100. * *How can skip-counting by tens help you skip-count by nines?* * Ask students to help you circle the jumps for nines on a hundred board. * Help students make the following observations:   + When jumping by 10, it’s always one more than jumping by a nine.   + The pattern for skip counting by 9s is jump up by 10, jump back by 1, then jump up by 10, jump back by 1 . . .   + Each jump of 9 has a tens digit one less than the jumps of 10.   + The ones digits start at 9 and count back one each time. The tens digits start at 0 and count up one each time. |
| **EXPLANATION**   * Students will explain their thinking and justify their solutions in groups and in whole-class discussion, as well as with drawings, diagrams, and oral explanations. |
| **ELABORATION**   * Have each partner select a number, from 2 to 10 by which to skip-count. Direct them to begin at zero and skip-count by their number. * Children work independently, placing a counter on each multiple in their pattern on their 100s board. When they have finished skip-counting and have covered all the multiples to 100, partners compare their patterns. |
| **EVALUATION**   * Ask the following question:   + *Would you say the number 120 if you start at 0 and skip count by tens? Why or why not? Use words, numbers, or pictures to explain.*   + *What are three numbers over 100 that you would not say if you were skip-counting by 10s? Explain, using words, numbers, or pictures.*   + *Ask questions above for skip counting by 5s and/or 2s.* |